

## CASE REPORTS

# A case of *Streptococcus intermedius*-induced subdural abscess and left transverse sinus thrombosis occurring subsequent to treatment for gingivitis

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### Abstract

We report a case in which an undernourished female patient underwent drainage for gingivitis, and subsequently suffered *S. intermedius*-induced subdural abscess, meningitis and transverse sinus thrombosis. A few days after drainage, she had a fever of 39°C and became lethargic with non-fluent aphasia. Cerebrospinal fluid revealed pleocytosis of 1269/μl, protein 222 mg/dl (normal 15-45mg/dl), glucose 33 mg/dl (ratio to blood glucose: 0.37). The diffusion-weighted MRI brain showed an area of abnormally high signal along the left brain surface. In the magnetic resonance venography, the left transverse sinus was not well delineated. After treatment with antibiotics (meropenem, vancomycin) and heparin, craniotomy was performed to remove the abscess. Culture of the abscess tissue detected *S. intermedius*. After surgery she gradually improved. To our knowledge, this is the first report of subdural abscess and transverse sinus thrombosis caused by *S. intermedius* occurring as a result of drainage treatment for gingivitis.

### INTRODUCTION

*Streptococcus intermedius* is a species of resident bacteria present in the oral cavity and airways. It can cause infection, usually in patients with reduced immunological capacity, and has a tendency to cause abscesses in the liver and brain.<sup>1,2</sup> The authors report a case in which an undernourished female underwent drainage for gingivitis, and subsequently suffered *S. intermedius*-induced subdural abscess, meningitis and transverse sinus thrombosis.

### CASE REPORT

A 50-year-old woman presented to the Otolaryngology Department of our hospital on June 24, 2012 complaining of 10 days of decreased appetite and left ear pain. The past medical history included surgery to remove the thoracic esophagus due to esophageal cancer in 2004 and a uterine myomectomy in 2006. A diagnosis of transudatory otitis media was made, and the patient underwent myringotomy. On July 1, fever of 39°C and pain in the left upper cheek developed. A dentist diagnosed and drained puerile

gingivitis. Oral antibiotics were subsequently administered. On July 9, speaking and writing difficulty developed, and she was admitted to our Neurology Department. On examination, her height was 149 cm and her weight was 29 kg. The patient was lethargic with non-fluent aphasia. Meningism was present. Laboratory tests revealed white blood count 17800/μl, hemoglobin 8.1 g/dl, platelet 31.6×10<sup>4</sup>/μl, C-reactive protein 11.38 mg/dl, and hypoproteinemia (total protein 5.2 g/dl, albumin 2.4 g/dl). Serum HIV was negative. Cerebrospinal fluid (CSF) revealed cell count of 1269/μl (mononuclear leukocytes : polymorphonuclear leukocytes = 608 : 3200), protein 222 mg/dl(normal 15-45mg/dl), glucose 33 mg/dl, and bacterial smear was negative. The MRI and Magnetic Resonance Venography (MRV) suggested a subdural abscess (Figure 1). The patient was diagnosed with bacterial meningitis, subdural abscess and left transverse sinus thrombosis. Treatment with antibiotics (meropenem and vancomycin) was started. At the same time, heparin treatment for transverse sinus thrombosis was also started. On July 11, she underwent a craniotomy to remove the

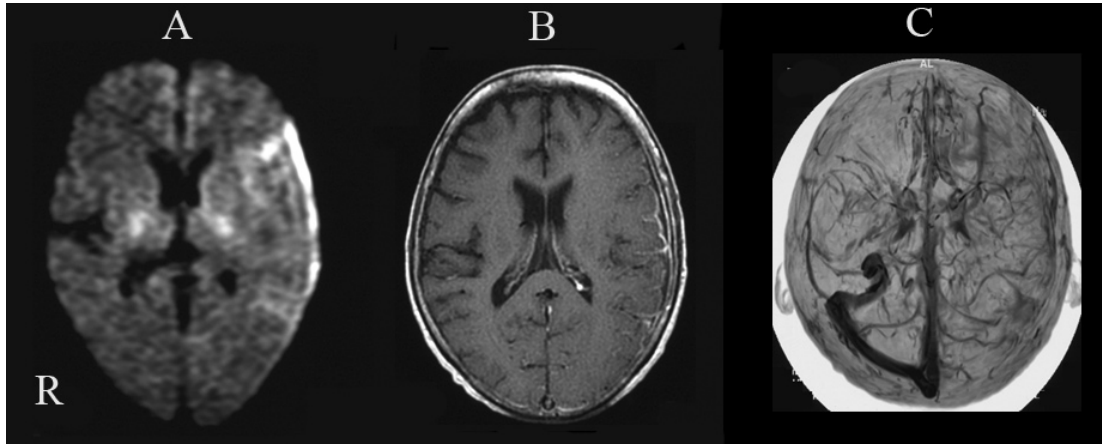


Figure 1. The diffusion-weighted image from a head MRI showed an area of abnormally high signal along the left brain surface (A). A contrast T1-weighted image showed that the left brain surface was covered by a contrast-enhanced membrane (B). Magnetic resonance venography showed that the left transverse sinus was not well delineated (C).

abscess (Figure 2). Culture of the abscess tissue resulted in the detection of *S. intermedius*. After surgery, her consciousness gradually improved. Though mild motor aphasia remained, she was independent for ADL and discharged from the hospital on August 22.

**DISCUSSION**

*S. intermedius* is a resident bacteria in the oral

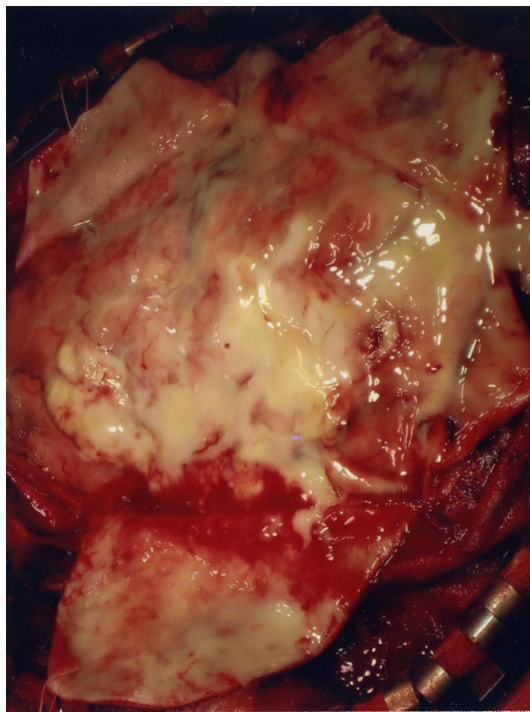


Figure 2. A picture of subdural abscess. At surgery, a subdural abscess was found.

cavity, which can cause gingivitis and brain abscess<sup>3</sup> and rarely cause spinal abscess<sup>4</sup> and subdural abscess.<sup>5</sup>

In many cases of central nervous system abscess, treatment involves the administration of antibiotics and additional surgical drainage.<sup>6</sup> In this case, the patient’s immunological function was compromised by malnutrition, and the drainage implemented to treat gingivitis resulted in *S. intermedius* infection of the oral cavity, which is assumed to have crossed hematogenously to the central nervous system. Cases have been reported in which this occurred concomitant to *S. milleri*-group sinusitis.<sup>7</sup>

To our knowledge, this is the first report of subdural abscess and transverse sinus thrombosis caused by *S. intermedius* and occurring as a result of drainage treatment for gingivitis. *S. intermedius* infection can rapidly spread in immune compromised patients.

**DISCLOSURE**

Conflicts of Interest: None

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